



September
2008

California Postsecondary Education Commission

Review of a Proposal to Establish a School of Medicine at the University of California, Riverside

Pursuant to Education Code 66903, the California Postsecondary Education Commission is charged with reviewing proposals for new academic and vocational programs at California's public colleges and universities and with making recommendations to the Legislature and the Governor.

The Commission finds that the University of California's proposal to establish a School of Medicine at the Riverside campus fully meets the Commission's Guidelines for Approval of New Programs. It is recommended, however, the University consider establishing the medical school at a later date when the state's economic and fiscal conditions are more favorable.

Contents

Background	1
Recommendations	2
Statutory and Administrative Requirements	3
Analysis.....	4
Program Review Guidelines	5

The Commission advises the Governor and the Legislature on higher education policy and fiscal issues. Its primary focus is to ensure that the state's educational resources are used effectively to provide Californians with postsecondary education opportunities. More information about the Commission is available at www.cpec.ca.gov.

Commission Report 08-16

Background

The University of California has proposed to establish a school of medicine at its Riverside campus. The school is tentatively scheduled to open in 2012 with an initial class of 50 students. At maturity, in 2017–18, the school would support 100 incoming students, 300 continuing medical students, 160 Ph.D. candidates, 160 medical residents and interns, and 138 full-time equivalent faculty.

The proposal responds to findings of a 2005 UC Health Sciences Committee report, *University of California Health Sciences Education: Workforce Needs and Enrollment Planning*. Based on supply-demand analyses, the report recommended that UC should increase enrollment levels in medicine, nursing, veterinary medicine, pharmacy, and public health.

This report concluded that because California currently has the physical capacity to train only 25% of its physicians, the state will need at least one, and possibly two, new medical schools. In the absence of expansion, demand for physicians in this state, according to various reports, is likely to outpace supply by between 5,000 and 17,000, assuming current trends in degree production of new primary care physicians and trends in utilization patterns.

The budget plan for the medical school assumes that the state would fund \$100 million in operational start-up costs, over five years, and a substantial part of the \$508 million in capital costs. Operating costs will continue to exceed revenues until 2019–20 with the result that the medical school would have a cumulative deficit of \$50 million to be funded by the state. The school is expected to be self-sustaining after 2019–20.

Commission Recommendations

Concurrence with Proposal

The Commission finds that the UC Riverside proposal fully meets all the Commission's program review criteria, and concurs with the recommendation to establish a medical school at UC Riverside.

State Budget Concerns and the Opening of the Medical School

The medical school budget plan assumes that the state would help fund \$100 million in operational start-up costs spread over five years, and \$508 million in capital costs. With the current state of the economy, state funding is likely to be tight for the next few years.

The Commission recommends that UC carefully weigh the advantages and disadvantages of opening the proposed medical school at a later date when economic circumstances are more favorable. If UC determines that establishing a new public medical school is of the highest priority and worthy of immediate state support, then the Commission asks that UC prepare an analysis demonstrating that other key university operations, programs, and services will not be adversely affected.

On July 18, 2008, the Board of Regents concurred with the recommendation of the UC Office of the President to approve the medical school contingent upon the commitment of new funding sources for the start-up operational costs and a significant portion of the capital costs.

Attrition of Students

The original UC Riverside proposal did not include a discussion of medical school attrition. Commission staff raised this issue because several reports revealed that national medical school attrition rates are much higher now than they were during the late 1970s. More troubling is that national medical school attrition rates are generally higher for women and historically underrepresented racial/ethnic groups. A 2007 report by the Association of American Medical Colleges (AAMC) showed that the 10-year attrition rate for the medical school class of 1995 was 6.7% for Black students, 0.7% for White students, and 0.9% for Asian students.

UC Riverside informed Commission staff that the UC Office of Health Sciences and Services estimates that about 95% or more of UC medical students graduate and enter residency. The Commission appreciates receiving this information, but recommends that UC monitor attrition rates by gender and ethnicity at its medical schools and to develop support programs if demonstrable differences are observed.

Appropriate retention programs are essential, given the interest of UC medical schools to enhance the ethnic diversity of California's physician workforce. UC Riverside assured Commission staff that its medical school, like other UC medical schools, will be deeply committed to the success of its students and that it will invest in programs such as tutoring of modified course loads to ensure student success. In special circumstances, such as childbearing or family issues, students will be granted a leave and allowed additional time to graduate.

Residency Training and Clerkships

Presently, UC does not monitor the proportion of an entering medical school class that completes residency at the UC campus where the M.D. degree was awarded. UC Riverside provided staff with a response noting that "the location in which medical students do their residencies is determined by a number of factors, including the location and competitiveness of specialty-specific residency training programs. For highly specialized areas of medicine, a relatively smaller number of residency programs are available in California and nationally. Admission to highly competitive programs or specialties that offer fewer entering positions can require students to move — independent of their ultimate priorities for future practice — to new locations that offer training in their field of interest."

The Commission acknowledges the complexities involved when medical students are considering where to apply for residency training. The Commission, nonetheless, believes that it is in the best interest of UC and the state for UC medical schools to collect and analyze residency location data. Such data offer insights into the public benefit that is a direct consequence of students completing their medical education and training in California and subsequently establishing a medical practice in California.

Teaching Hospitals

The UC Riverside medical school is based on a distributed service model wherein medical students would acquire training in a variety of healthcare establishments in the Inland Empire region. A number of public officials and legislative analysts have raised questions regarding medical schools that do not support a teaching hospital.

The Commission recommends that UC Riverside prepare a supplemental narrative that includes a general estimate of the capital and operational costs of a teaching hospital, based on forecasted enrollments and biomedical research activities, a discussion of the value added to residency and intern training that is realized by a teaching hospital that is not fully realized by a distributed model without a teaching hospital, and a discussion of societal benefits of using a teaching hospital rather than a distributed service model. A letter from UC Riverside responding to initial discussions on these concerns is included on page 9 of this report.

Analysis

This section provides an analysis of the proposal in relation to each review criterion as stated in the Commission's program review principles and guidelines.

Societal Need

Industry and occupational projections of the California Employment Development Department indicate that the demand for physi-

Statutory and Administrative Requirements

Assembly Resolution 770, Statutes of 1974, established the California Postsecondary Education Commission as the statewide planning and coordinating agency for postsecondary education, with major responsibility for academic and occupational program review. Education Code §66902–66903 express the intent of the Legislature that the Commission has specific academic and vocational program review responsibilities:

- Review and comment on the long-range plans developed by the public higher education governing boards and make recommendations to the Legislature and Governor.
- Review and comment on the need for new academic, vocational, and certificate programs proposed by the public higher education systems and make recommendations to the Legislature and Governor.
- Evaluate and comment on the program review process of the public higher education systems.
- Identify societal educational needs and encourage institutional adaptability to change.
- Review periodically the availability of continuing education programs for adults and make appropriate recommendations.

In consultation with the systems, the Commission developed a set of principles to guide the review process for new undergraduate and graduate programs. As defined in statute, the Commission's role in the review process is primarily advisory. However, in the case of joint doctoral programs involving public and private institutions, the Commission has approval authority. The guidelines used by Commission staff in reviewing include seven criteria:

- Societal need
- Student demand
- Number of existing and proposed programs in the field
- Appropriateness to the institutional and system mission
- Advancement of knowledge
- Total costs of the program
- Maintenance and improvement of quality

More details on these criteria are on page 5.

cians will remain exceptionally high in the Inland Empire over the next ten years. A study by the Center for Health Workforce Studies done in 2004 showed that the Inland Empire has the state's lowest ratio of active care physicians per 100,000 residents and that its population is expected to nearly double (47%) between 2000 and 2015. Fast population growth, the aging of the existing physician workforce, and low physician-to-population ratio are three factors contributing to the Riverside area being underserved medically.

The Health Workforce study forecasts that the statewide demand for physicians is likely to outpace supply by between 5,000 and 17,000, assuming current trends in degree production of new primary care physicians and trends in utilization patterns. The study supports the general conclusion that in the absence of significant public and private medical education expansion, California will continue to rely on foreign and out-of-state medical schools to supply three-quarters of its physicians. It is in the state's best interest to educate and train a much higher proportion of the primary care physicians and biomedical researchers required to meet California's burgeoning healthcare needs, given the range of health problems related to heart disease, cancer, asthma, and obesity, as well as observable disparities in health status by ethnicity and socioeconomic status.

Maintenance and Improvement of Quality

The Association of American Medical Colleges (AAMC) has expressed concern that the design and content of U.S. medical education programs have not kept pace with advances in the biomedical sciences. A 2004 AAMC report calls for medical school curricula to embrace innovative instructional approaches for diagnosing and managing disease that are based on advances in the biomedical sciences. The report also calls for medical schools to sponsor clinical training and clerkships that result in healthcare services being delivered in a manner that better meets societal needs and expectations.

Commission staff found the curriculum and clinical training practices proposed by UC Riverside to contain all essential features endorsed by the AAMC. In particular, the medical school will have a strong biomedical health and clinical sciences research focus to advance knowledge in the medical sciences. Clinical training and clerkships would be delivered via a distributed clinical model wherein medical students would acquire training in a variety of healthcare establishments in the southern Inland Empire region. UC Riverside believes that health services can be enhanced in economically disadvantaged communities by offering clinical residency training programs in those areas because physicians tend to practice near their area of residency training. The distributed clinical model would eliminate the need for the state to help fund and support a costly teaching hospital.

Student Demand

California's medical schools enroll about 1,300 first-year students annually with a total enrollment of about 5,500 students. Each year, less than 6% of first-year medical school applicants are offered admission. UC reports that in 2002, California had 15.6 medical school openings per 100,000 residents.

Budget data obtained by the Commission confirmed that UC medical schools have received little state funding for enrollment growth over the past 30 years. Consequently, California is able to educate and train only about 25% of its physicians. This means that many promising and talented California residents must pursue medical education and training at out-of-state or foreign medical schools. According to UC, of the active patient care physicians in California who attended a California medical school, approximately 62% graduated from a UC medical school.

Appropriateness to Institutional Mission

The California Master Plan for Higher Education accords UC exclusive public responsibility for professional education in law, medicine, dentistry, and veterinary medicine. Establishing a new public medical school is consistent with this plan.

The Commission's Program Review Guidelines

Societal need

Postsecondary education institutions bear a responsibility for preparing students to meet the state's workforce and knowledge needs. Workforce demand projections serve as one indication of the need for a proposed program. Although achieving and maintaining a perfect balance between supply and demand in any given career field is impossible, it is important nevertheless that the number of persons trained in a field and the number of job openings in that field remain reasonably balanced.

Maintenance and improvement of quality

Protecting the public interest and trust requires that educational programs at all levels be high quality. Although the primary responsibility for the quality of programs rests with the institution and its system, the Commission, for its part, considers pertinent information to verify that high standards have been established for the operation and evaluation of the program.

Student demand

Within reasonable limits, students should have the opportunity to enroll in programs of study for which they are interested in and for which they are qualified. Therefore, student demand for programs, indicated primarily by current and projected enrollments, is an important consideration in determining need for a new program.

Appropriateness to the institutional and system mission

Programs offered by a public institution within a given system must comply with the delineation of function for that system, as set forth in the California Master Plan for Higher Education. Proposed new programs must also be consistent with the institution's own statement of mission and must be approved by the system's statewide governing body.

Number of existing and proposed programs in the field

An inventory of existing and proposed programs provides an initial indication of the extent to which apparent duplication or undue proliferation of programs exists, both within and among the higher education systems. However, the number of programs alone cannot be regarded as an indication of unnecessary duplication. This is because (a) programs with similar titles may have varying course objectives or content, (b) there may be a demonstrated need for the program in a particular region of the state, or (c) the program might be needed for an institution to achieve academic comparability within a given system.

Total costs of the program

The relative costs of a program, when compared with the costs of other programs in the same area, constitute another criterion in the Commission's program review process. Included in the consideration of costs are the number of new faculty required based on desired student-faculty ratios, as well as costs associated with equipment, library resources, and facilities necessary to deliver the program. For a new program, it is necessary to know the source of the funds required for program delivery, both initially and in the long run.

Advancement of knowledge

The program review process encourages the growth and development of intellectual and creative scholarship. When the advancement of knowledge seems to require establishing programs in new disciplines or in new combinations of existing disciplines, such considerations as costs, student demand, or employment opportunities may become secondary.

Display I. California Medical School Enrollments

	First-year places	Total places
University of California		
Davis	93	372
Irvine	92	368
Los Angeles	169	676
San Diego	122	488
San Francisco	153	624
UC total	629	2,540
Independent universities		
Loma Linda University	165	648
Stanford University	87	465
University of Southern California	160	659
Western University*	176	700
Touro University*	125	475
Independent total	713	2,947
Grand total	1,342	5,487

Western University and Touro University are osteopathic medical schools. All of the others are allopathic medical schools. Allopathic (MD degree): Training in medicine leading to residency training in medical or surgical specialty areas. Osteopathic (DO degree): Training in preventive and holistic care involving the manipulation of the musculoskeletal system.

Medical Schools in Southern California



UC Riverside's history in medical education dates to 1974, when a joint UC Riverside–UC Los Angeles program in biomedical sciences was established. In this program, UC Riverside students take their first two years of medical education and biomedical research and then transfer to UCLA for their remaining two years. UC Riverside reports that nearly 700 students earned the M.D. degree during the program's 34-year history.

Number of Existing and Proposed Programs in the Field

The enrollment demand analysis demonstrates that the present combination of public and private medical schools is insufficient for meeting California's health-care needs, even with the inflow of primary care physicians from out-of-state and foreign medical programs. Thus, establishing a new public medical school would not constitute unnecessary duplication, and it would not adversely impact medical education and training programs at independent universities in the area.

A key impetus for the program duplication review criterion is to encourage institutional collaboration in program planning so that the combination of public and independent degree and certificate programs will meet the state's educational knowledge and training needs in a cost-effective manner. UC Riverside has demonstrated the ability to forge cost-effective collaborative programs and ventures, as evident by the success of the joint biomedical program with UCLA. The distributed clinical model entails partnerships with regional hospitals, clinics, and physician practices to support UC Riverside's graduate medical education and clerkship requirements.

Total Costs of the Program

A program proposal must identify all immediate and long-term costs and the sources of funds to meet these costs. The UC Riverside financial plan is summarized in Display 2 on the next page.

UC Riverside expects that the cumulative operating deficit of approximately \$30 million in 2011–12 will be reduced to \$23 million through fundraising efforts, including gifts and endowments. The start-up phase includes recruiting a founding dean and faculty,

establishing an administrative infrastructure, developing a research enterprise, and establishing a postgraduate training program. The financial plan assumes that the state would cover the adjusted cumulative deficit of \$23 million.

The cumulative operating deficit of approximately \$157.4 million, covering the growth period from 2012–13 to 2019–20, is expected to be reduced to \$73.4 million through fundraising efforts, including gifts and endowments. The school is expected to be self-sustaining after 2019–20.

During the growth phase, enrollments (excluding Ph.D. students, residents, and interns) are projected to increase from 129 in 2012–13 to 705 in 2019–20.

UC Riverside's capital construction plan would be undertaken in two phases. Phase I entails renovating biomedical instructional and office space, constructing a health sciences surge building, and enhancing vivarium space for housing research animals.

Phase I construction is tentatively scheduled to begin in 2009. Renovations would be sufficient to accommodate 50 students per semester and the founding faculty. Display 3 shows the cost is approximately \$48.4 million, of which the state would be asked to fund \$5 million.

Phase II entails constructing medical school facilities on UC Riverside's West Campus. UC Riverside planners have determined that because the site is underdeveloped, utilities will have to be installed and connections made to municipal services, roadways, and a central plant. Proposed facilities include two medical instruction and research buildings and a new vivarium. West Campus facilities will support the projected growth in enrollment and FTE faculty growth through 2021 and beyond. The cost is estimated to be \$508 million, of which the state would be asked to contribute a significant portion.

Because of current economic conditions, state funding is likely to be tight in the next few years. The Commission recommends that UC Riverside consider delaying the opening of the medical school until the state's budget is more favorable. Consistent with the Commission's concerns, the UC Board of Regents has approved the medical school proposal with the stipulation that new funding sources be secured to meet the \$100 million in start-up operational costs and a significant portion of the \$508 million in capital costs.

**Display 2. Financial Plan for the
UC Riverside Medical School**

Academic year	Revenue	Operating expense	Deficit	Cumulative deficit
million \$				
Start-up phase				
2008–09	9.23	11.83	2.59	2.59
2009–10	9.59	14.57	4.98	7.57
2010–11	11.54	18.45	6.92	14.49
2011–12	13.09	28.64	15.55	30.04
Growth phase				
2012–13	17.24	31.59	14.35	14.35
2013–14	24.50	45.82	21.32	35.67
2014–15	37.38	52.62	15.24	50.91
2015–16	53.39	82.31	28.92	79.84
2016–17	60.54	77.30	16.76	96.60
2017–18	70.42	97.75	27.33	123.93
2018–19	72.05	88.81	16.75	140.68
2019–20	73.30	89.97	16.77	157.37

In the start-up phase, fundraising, gifts, and endowments are expected to reduce the cumulative deficit from \$30 million to \$23 million.

By 2019–20, fundraising, gifts, and endowments are expected to reduce cumulative deficit from \$157.4 million to \$73.4 million.

Display 3 Capital Planning and Construction Plan

	Project name	ASF/GSF	Cost	Fund source
million \$				
Phase I — Transitional Space	Telemedicine phase I	Unknown	1.4	State
	Telemedicine phase II	3,900 ASF	3.6	State
	Health science building and vivarium	39,000/61,000	40.0	Campus
	Anatomy lab renovation	2,200 ASF	2.5	UCOP/Campus
	Biomedical science space renovation	4,000 ASF	0.3	UCOP/Campus
	Biomedical science space renovation	1,900 ASF	0.4	UCOP/Campus
	Biomedical science space renovation	1,500 ASF	0.2	UCOP/Campus
	Total	—	48.4	—
Phase II — West Campus	Infrastructure	—	42.0	State
	Instruction and research facilities	282,875/450,731	421.5	State/Other
	Vivarium	22,060/40,100	44.4	State/Other
	Total	—	507.9	—

ASF refers to assignable square feet; GSF refers to gross square feet.

Advancement of Knowledge

The UC Riverside medical school is intended to have a strong biomedical health and clinical sciences research focus to advance knowledge in the medical sciences. Research priority areas of benefit to California and its residents include research on cardiovascular diseases, diabetes and metabolic syndromes, emerging infectious diseases, neurodegenerative diseases, and health services.

Consistent with the land grant mission of the University of California, the UC Riverside medical school will also focus on health issues that are specific to the Inland Empire, and that are specific to ethnic and cultural groups living in the region.

Recent healthcare sciences research supports the premise that health status often varies by region, and by neighborhood within region. For example, a 2008 report by the Alameda County Public Health Department found that a Black child born in West Oakland is more prone to diabetes, heart disease, cancer, and stroke, than is a White child born in the Oakland Hills. Within racial/ethnic groups, a Black person living in the Oakland Flatlands has a life expectancy of 70.5 years on average, compared with a life expectancy of 77.4 years for a Black person living in the Oakland Hills. Conversely, a White person in the Oakland Flatlands has a life expectancy of 76.6 years, compared with a White person living in the Oakland Hills who has a life expectancy of 82.3 years.

Research on the sociology of health will be instrumental in developing viable legislation and public policies aimed at eliminating or reducing disparities in health and life expectancy by region, neighborhood, and ethnicity.

Life Expectancy by Race and by Neighborhood		
	Black	White
Oakland Flatlands	70.5 years	76.6 years
Oakland Hills	77.4 years	82.3 years

Letter from UC Riverside Responding to the Commission's Questions Regarding Teaching Hospitals



OFFICE OF THE CHANCELLOR

August 12, 2008

Stacy Wilson, Ed.D.
California Postsecondary Education Commission
770 L Street, Suite 1160
Sacramento, CA 95814-3396

Dear Stacy:

900 University Avenue
Riverside, CA 92521
Tel 951.827.5201
Fax 951.827.3866
www.ucr.edu

Recently you asked that UCR address three questions about teaching hospitals. Before addressing your specific questions, I would like to point out that teaching hospitals are defined not by "ownership," but by the educational mission and the affiliation with a medical school. Thus, a hospital that is not owned by UC, but which supports its teaching mission and has a reciprocal relationship with the University may, in fact, be a "teaching hospital" in the fullest sense of the word. At UCR, for example, faculty who teach in non-university hospitals will have academic appointments and will be UCR School of Medicine faculty. We anticipate having 2-4 community partners that will provide the education and patient mix necessary to teach our residents. Using selected institutions will assure that residents have exposure to patients in both the public and private sector, to patients who are both economically disadvantaged and advantaged, and to patients who reflect the cultural and ethnic diversity of our State. Having a distributed model does not mean that residents are spread all over the region. Rather, a select number of medical centers will become UCR's affiliated partners and the core of our educational endeavor.

As to the specific questions:

1. *What is the estimated capital and operational cost to support and maintain a teaching hospital?*

The initial capital needed to build a teaching hospital is estimated to be between \$600 and \$700 million dollars. UCR did not further assess operational costs since we decided not to build a hospital. The operational costs can easily be obtained from the other five UC medical schools that are currently operating teaching hospitals. Were UCR to build its own hospital, operational costs would probably be most similar to UC Davis or UC Irvine.

2. *What is the value-added to residency training that is realized by a teaching hospital that is not fully realized by a "distributed model" that does not involve a teaching hospital?*

The primary value-added of residency training at a University-owned teaching hospital is the ability to have faculty and residents in close proximity to the campus for educational purposes. Also, as a University teaching hospital develops, more specialty services are available for education (particularly for tertiary and quaternary care), and students and residents are physically closer to opportunities to be exposed to research. With a distributed model, however, students and residents are exposed to a variety of educational experiences that are facilitated by having UCR faculty based at different institutions. These may include publicly owned, privately owned, or HMO institutions, each serving somewhat different populations and having different areas of emphasis. Further, having UCR faculty in 2-4 teaching hospitals will allow involvement in the community as well as ongoing faculty development programs. There is no inherent advantage having a University teaching hospital other than clinical income, proximity of clinical faculty to the university, and the more expeditious conduct of research. An example of a medical school that has been very successful with affiliated teaching hospitals and no university hospital is Harvard School of Medicine.

3. What are the societal benefits that are realized by a teaching hospital that are not realized by a distributed service model?

It is difficult to identify societal benefits realized by a teaching hospital as opposed to a distributed model, unless one assumes that the university teaching hospital will deliver care to indigent and under- or uninsured patients at a rate over and above the community rate. It is important to understand that the distributed model does not diminish the educational environment for residents. The hospitals with which UCR will affiliate will become the UCR teaching hospitals just as Massachusetts General is one of Harvard's teaching hospitals. The UC system has many examples of teaching hospitals that are not University teaching hospitals: UCLA, for example, is affiliated with the VA, Cedars-Sinai, Harbor-UCLA Medical Center, and others. These affiliated hospitals provide more than 50 percent of the student and resident education. The service provided to the community can occur whether a medical school owns a University hospital or is affiliated with local hospitals that may be either public (county, VA) or private.

Stacy, I hope you find these responses helpful. I look forward to meeting you at the September Board meeting.

Sincerely,



Timothy P. White
Chancellor